

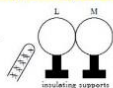
class2016	
R	Exam1
R00801609	68
R01026470	84
R01077393	84
R01078460	100
R01083245	100
R01096647	84
R01124126	84
R01124355	84
R01173254	100
R01177331	100
R01305105	100
R01316004	100
R01316415	68
R01320803	84
R01323060	100
R01324215	100
R01327763	84
R01328521	84
R01329410	52
R01329827	100
R01331415	100
R01331479	84
R01335317	100
R01336246	100
R01336332	100
R01337940	68
R01338810	68
R01342892	100
R01344623	84
R01347660	100
R01347712	100
R01351700	100
R01368974	68
R01369514	100
R01371352	84
R01393833	100
R01394566	100

EXAM1. ANSWERS

Summer 2016. Exam 1. QQ 1-3

#1. Two uncharged metal spheres, L and M, are in contact. A negatively charged rod is brought close to L, but not touching it, as shown. The two spheres are slightly separated and the rod is then withdrawn. As a result:

A. both spheres are neutral
 B. both spheres are positive
 C. both spheres are negative
 D. L negative, M positive
 E. L positive, M negative



#2. A particle with charge $2\text{-}\mu\text{C}$ is placed at the origin, an identical particle, with the same charge, is placed 2m from the origin on the x axis, and a third identical particle, with the same charge, is placed 2m from the origin on the y axis. The magnitude of the force on the particle at the origin is:

A. $-9.0 \times 10^{-3}\text{ N}$
 B. $-6.4 \times 10^{-3}\text{ N}$
 C. $1.3 \times 10^{-2}\text{ N}$
 D. $1.8 \times 10^{-2}\text{ N}$
 E. $3.6 \times 10^{-6}\text{ N}$

#3. A 30-N/C uniform electric field points perpendicularly toward the left face of a large neutral conducting sheet. The surface charge density in C/m^2 on the left and right faces, respectively, are:

A. -2.7×10^{-9} ; $+2.7 \times 10^{-9}$
 B. $+2.7 \times 10^{-9}$; -2.7×10^{-9}
 C. -5.3×10^{-9} ; $+5.3 \times 10^{-9}$
 D. $+5.3 \times 10^{-9}$; -5.3×10^{-9}
 E. 0; 0

Summer 2016. Exam 1. QQ 4-6

#4. The electric field due to a uniform distribution of charge on a spherical shell is zero:

A. everywhere
 B. nowhere
 C. only at the center of the shell
 D. only inside the shell
 E. only outside the shell

#5. When a piece of paper is held with one face perpendicular to a uniform electric field the flux through it is $25\text{N} \cdot \text{m}^2/\text{C}$. When the paper is turned 25° with respect to the field the flux through it is:

A. 0
 B. $12\text{N} \cdot \text{m}^2/\text{C}$
 C. $21\text{N} \cdot \text{m}^2/\text{C}$
 D. $23\text{N} \cdot \text{m}^2/\text{C}$
 E. $25\text{N} \cdot \text{m}^2/\text{C}$

#6. 10C of charge are placed on a spherical conducting shell. A particle with a charge of -3C is placed at the center of the cavity. The net charge on the outer surface of the shell is:

A. -7C
 B. -3C
 C. 0C
 D. $+3\text{C}$
 E. $+7\text{C}$